REMARKS

The Examiner is thanked for the due consideration given the application.

Claims 1, 4, 5, 7-14 and 16-23 are pending in the application. Claims 22 and 23 are newly presented.

No new matter is believed to be added to the application by this amendment.

Claim Objections

Claim 21 has been objected to as containing an informality. The Official Action asserts that line 15 of claim 21 sets forth "tensile element", which should be "tensile means." However, claim 21 has been presented in the last response in order to set forth the present invention without utilizing "means" language.

It is accordingly believed that claim 21 is free from informalities.

Rejection Based On PERRY

Claims 1, 4, 5, 7-14, 16-20 and 21 have been rejected under 35 USC §103(a) as being unpatentable over PERRY (U.S. Patent 2,322,466) in view of HATTORI (U.S. Patent 4,552,549), and further in view of BOUTEILLER (U.S. Patent 4,773,896) and/or BERNARD (WO 8301665). This rejection is respectfully traversed.

The present invention pertains to a transmission belt that is illustrated, by way of example, in Figures 2 and 4 of the application, reproduced below.

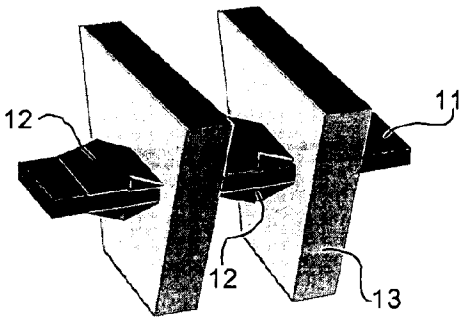


FIG. 2

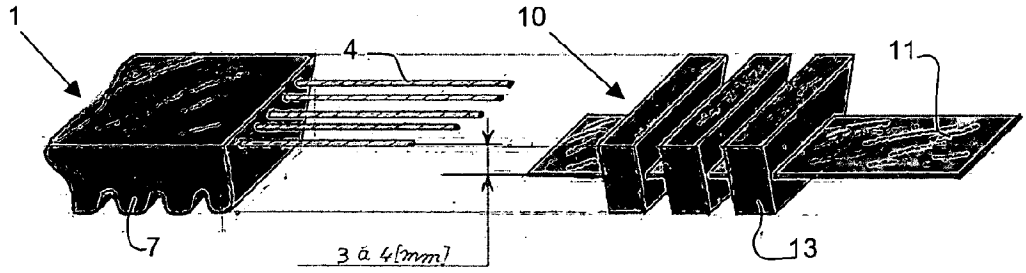


FIG. 4

Figures 2 and 4 show a tensile body 11, intermediate bodies 12 and transverse elements 13. The intermediate bodies 12 are formed form elastic deformable material. The tensile element extends over a width being 0.5 to 0.9 times the width of the transverse element of the effective running diameter of the belt.

Instant claim 1 of the present invention recites: "*an intermediate body of elastically deformable material . . . tensile means extending over a width being from 0.5 to 0.9 times a width of the transverse element at the running diameter of the belt,*" and "*wherein the tensile means comprises one of a uni-directional (UD) and a metal sheet-material, in which the intermediate body has an adhesive connection with a radial face of the tensile means and in which the slotted openings of the*

transverse elements fit with a cross section of the tensile means."

PERRY pertains to a belt. The Official Action refers to Figure 1 of PERRY, which is reproduced below.

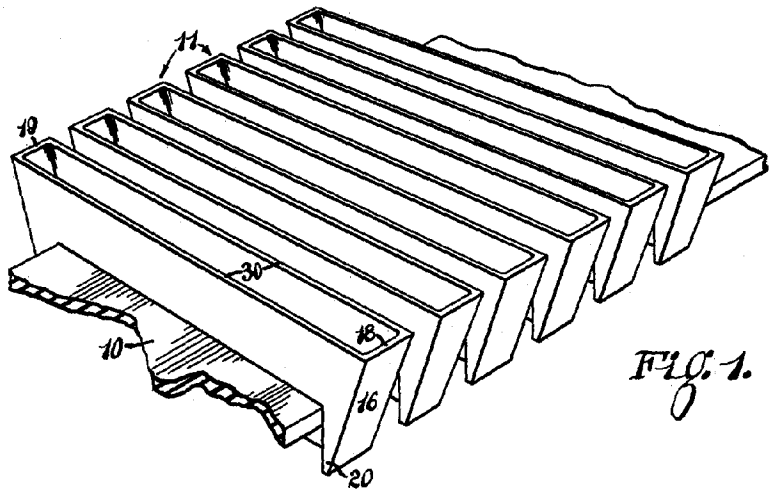


FIG. 1.

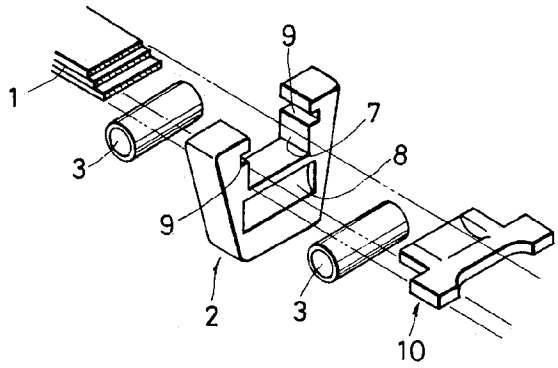
PERRY discloses a belt having transverse elements 11, provided on a flexible strip of material 10. The transverse elements include a central beam 13 and two opposite end members 14, 15. The beam and end members provide for a wide, substantially H-shaped profile. The beam 13 is placed on top of the strip 10. A plate 26 is positioned on the opposite side of the strip 10. Rivets are provided, extending through the plate 26, strip 10 and beam 13 for interconnecting these.

The description of PERRY states (i.e., column 2, lines 46-50) that opposite ends of the plate 26 should cooperate with grooves in the end members 14, 15 of the element 11 to transfer forces, independently of the securing pins. The pins therefore keep the elements 11 in position relative to the strip 10 and the

plate 26. The driving forces exerted on the flanks 16, 17 of the end members are transferred to the strip by clamping the plate 26 and element 11 onto each other and to the strip, by means of the rivets, since there is no other way of transferring such.

The Official Action turns to HATTORI for teachings pertaining to tensile elements of metal or steel. But consider for example Figure 13 of HATTORI (which is similar to Figure 4 referred to in the Official Action), which is reproduced below.

FIG. 13



In HATTORI elements 2 are placed on a belt 1 constituted from a series of superimposed strips of metal. Elements 3 are positioned between facing surfaces of adjacent elements 2 for transferring a driving force. The elements 2 are not and do not have to be fixedly connected to the belt 1 (see, e.g., column 4, lines 8 - 32). HATTORI does not disclose a single strip made of a flexible material.

The Official Action refers to Figure 7 of BOUTEILLER, which is reproduced below.

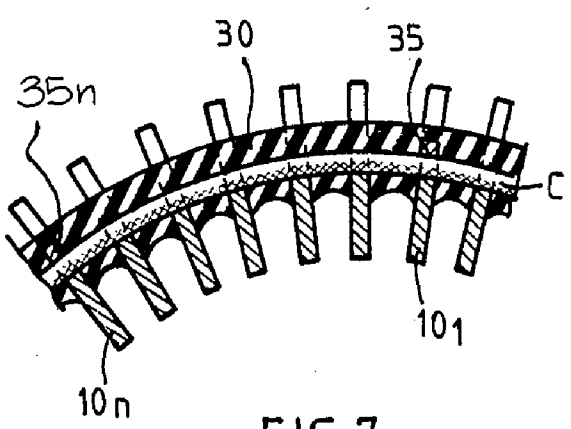
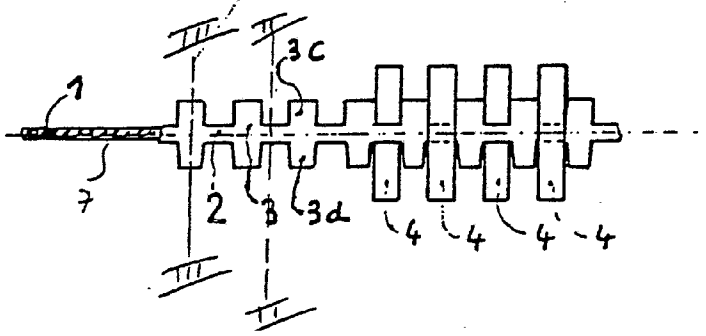


FIG. 7

BOUTEILLER discloses a belt formed from a series of substantially U-shaped plates 10, each provided with a series of indentations in a bottom surface, where a series of cables can be positioned. The cables are then enclosed within a pliable elastomeric mass 30 forming a continuous belt between and over the plates 10 and the cables.

The Official Action refers to Figure 1 of BERNARD, which is reproduced below.

FIG. 1



BERNARD discloses a belt comprising a series of plates 4, mounted on a molded strip comprising an armature of, e.g., cables, woven fibers or the like, including openings to an extent

of at least 30% of the surface area. The strip includes a series of parts 2, 3. The plates are positioned between the higher parts 3, on the lower parts 2. The higher parts 3 are in engagement with facing surfaces of adjacent plates 4 at the outer side of the belt, whereas at the inner side (the side facing the drive and driven pulleys) they are free of the plates. In use, the plates transfer the driving forces through the strip to each other, either above or below the strip. As discussed before, the armature has to be partly (to a high extent) open to allow the polyamide to extend through.

Additional distinctions of the present invention over BERNARD were discussed in the Amendment filed August 22, 2008 which, for brevity, are not repeated here.

Now compare the applied art references to the present invention.

In the present invention a belt is provided which can transfer very high forces at very small curvatures. See, e.g., paragraphs 0027 and 0030 of the specification. In the present invention a flat, solid strip is used as a belt, onto which the transverse elements are provided. The transverse elements have a central slot through, which the belt extends. In between the transverse elements deformable elements 12 are provided by adhering these onto the (opposite) surfaces of the belt. Driving forces are transferred from pulleys to the transverse elements and then to the belt by the deformable elements 12, rather than

by any means fixing the transverse elements 11 onto the belt, as is disclosed by PERRY, or from transverse element to transverse element, as is disclosed by HATTORI, BOUTEILLER and BERNARD.

As is discussed throughout the application as filed, the belt is very flexible due to *inter alia* the thin strip, whereas since it is a closed strip, very high forces can be transferred without the risk of, e.g., cables cutting through covering material.

A belt according to the present invention is very simple in construction compared to, e.g., PERRY and HATTORI and is far easier to manufacture than, e.g., the belts of BOUTEILLER and BERNARD. BOUTEILLER necessitates injection molding the belt over the cables and plates, which is cumbersome and necessitates the use of plates that must resist the molding temperatures, whereas BERNARD necessitates manufacturing the strip first, by injection molding, and subsequently installing the plates in a correct manner, where they have to be locked into place by locking means, such as a notch 4E or edges 6a, both prone to mistakes and relative movement of the plates relative to the strip, especially since the armature is surrounded by the polyamide, allowing further relative movement.

In the present invention, the transverse elements 11 can easily be placed over the strip, where the deformable elements can easily be adhered to the strip in between the transverse elements. The transverse elements need not be

connected directly to the strip but can be enclosed between the deformable intermediate elements 12. This prevents weakening of the strip by openings, such as are necessary in PERRY and BERNARD. Since the forces are transferred directly from the transverse elements to the belt and not necessarily to another transverse element an optimal, transfer of forces is obtained, both in a curved belt position and in a straight belt position.

None of the documents relied upon by the Office discloses adhering flexible elements to a belt, between transverse elements, at radial sides thereof, nor transverse elements having a slot fitting "snugly" on the belt (that is, without intervening material such as the polyamide disclosed in BERNARD). Even in HATTORI additional elements 10 have to be provided to contact the belt. In a belt according to the present invention the transverse elements can be enclosed between the deformable elements without themselves having been fixed to the strip (tensile means).

In PERRY it is an essential feature that the transverse elements are fixated on the belt 10 by the rivets 27, further use a clamping plate 2 to make the positioning even more stringent[1]. In HATTORI the transverse elements are positioned relative to

[1] When driven by or driving a pulley the transverse elements will, if applied correctly, be in contact with the pulley at both sides over the full height and therefore pull at the strip 10 essentially in the length direction of the strip, normal to the sides of the transverse elements adjacent to each other. In PERRY the transverse elements are fixed in place. The only way that they could effectively contact a deformable element that would be placed between adjacent elements would be by tilting the transverse element relativ to the strip, which would be highly detrimental to the life of the belt, due to very high stresses in the strip, apart from the fact that this would lead to high wear on the side faces of the transverse elements and/or the pulley, because of the inappropriate position of the transverse elements relative to the pulley. The Office's posited rationale is thus counterproductive.

each other by elements that are not connected, to the multi layered strip 1 but enclosed between adjacent elements 3, whereas the transverse elements themselves are also not necessarily fixated relative to the strip. The effective position of a pulling force in the belt will therefore be mainly outside the plane of the multi layered strip. The combination of these documents is therefore unlikely. There is no teaching, suggestion or motivation in these documents to combine, nor would such combination be obvious in any other way. It is furthermore not a mere combination of known elements for obtaining the same, known results.

The combination of PERRY with HATTORI is unlikely and would moreover not result in the present invention. Applying HATTORI to PERRY would result in a belt having transverse elements fixed to a multi layered strip, with the elements 13 positioned in between the transverse elements, spaced apart from the surface of the strip, which would not result in a minimal thickness belt.

Moreover, the assumption that steel would necessarily be stronger and more durable than rubber is not necessarily true. Applying PERRY to HATTORI could at best lead to a belt having a single layer plastic of rubber strip with transverse elements not having been fixed to the belt, with the elements 18 positioned in between the transverse elements, spaced apart from the surface of the strip, which is contrary to the essential teaching of PERRY,

which prescribes as essential the fixation of the transverse elements. Therefore this combination would not be contemplated: it goes against the teaching.

Applying BERNARD or BOUTEILLER to PERRY would make no sense. In PERRY the transverse elements are fixed in position to the belt, spaced apart from each, other. Placing a deformable element on the belt between the transverse elements would have no sensible material effect since the transverse elements cannot move relative to the belt.

Applying PERRY to BERNARD or BOUTEILLER could only result in a belt in which transverse elements are fixed into place on the belt by rivets, reducing the strength of the belt considerably and, moreover, rendering the intermediate thicker parts of the belt virtually useless. Therefore the combination of these documents would also be unlikely and, would still not result in the desired belt as claimed according to the present invention.

In this respect, it is interesting to see that the Office asserts that it would have been obvious to provide elastically deformable elements between the transverse elements of PERRY "*in order to reinforce the transverse elements and also make the belt strong and durable and thus increasing the life of the belt.*" This is not the (main) reason for using these intermediate elements in the present invention. The intermediate elements of the present invention are provided directly on the

tensile element (strip) for transferring the driving force directly from the transverse elements to the tensile element. In view of the fixation of the transverse elements in PERRY this would not be the immediate result of using elements of BERNARD or BOUTEILLER in PERRY, even if a person skilled in the art would have considered cutting the elements in between the transverse elements of BERNARD or BOUTEILLER from the further plastic reinforced strip and applying these to PERRY, for which there would be no indication in either one of these documents.

Also there is no teaching or inference in PERRY, BERNARD, or BOUTEILLER of a technology that would indeed improve belt life: adding the material of BERNARD or BOUTEILLER would decrease flexibility of the belt, thus resulting in higher stress in the belt when led around tight curves, probably decreasing the belt life sooner than increasing it.

The Office furthermore asserts that the dimensions would also have been the obvious result of routine testing. It is however an advantageous element of the present invention that the tensile element extends over a large part of the width of the transverse elements, in order to be able to take up the high shear stress when transferring the driving force, whereas it should not be too wide, in order to prevent the sides of the tensile element from coming into contact with the pulleys. This advantage represents an unexpected result that would rebut any unpatentability that could be alleged.

That is, the present inventors have had the inventive insight that by providing transverse elements onto a very thin strip of material having high tensile strength and adhering elastically deformable material elements between adjacent transverse elements onto at least a radial side of the strip driving forces can be transferred directly to the strip by the elements. And that even though the strip is very thin, very high contacting pressures can be realized (see paragraph 0027 of the specification). As discussed in paragraph 0030 of the specification it relies on shear force of the elastically deformable material of the intermediate body 12 and not, as is done in the related art, or at least not solely on the tensile force coefficient of the strip material. This leads to a higher capacity.

For the reasons given above, it is believed that it would not have been obvious to the person skilled in the art at the time of the invention was made to combine the applied art references. And even if such person would have combined these documents he would not have known how to combine different aspects thereof into one new belt. Moreover, even if he would have known how to chose different aspects of these different publications, leaving out others, even if they were discussed as essential to the inventions claimed in the prior art documents, he would and could still not have arrived at the present

invention since some of the features of the present invention are simply not disclosed in these documents.

Also, the distinctions of the present invention discussed above are also reflected in newly presented claims 22 and 23.

One of ordinary skill and creativity would thus fail to produce a claimed embodiment of the present invention from a knowledge of the applied art references, and a *prima facie* case of unpatentability has thus not been made.

The rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The objections and rejections are believed to have been overcome, obviated or rendered moot, and no issues remain. The issuance of a Notice of Allowability is accordingly respectfully solicited.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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